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<170>  PatentIn version 3.2
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[illegible]

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Tyr	Ala	Thr	Val	Ala	Gly	His	Asn	Gln	Ala	Pro	Ile	Gly	Ser	Ser	Val	
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Cys	Arg	Ser	Gly	Ser	Thr	Thr	Gly	Trp	His	Cys	Gly	Thr	Ile	Gln	Ala	
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Arg	Thr	Thr	Val	Cys	Ala	Glu	Pro	Gly	Asp	Ser	Gly	Gly	Ser	Tyr	Ile	
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Ser	Gly	Thr	Gln	Ala	Gln	Gly	Val	Thr	Ser	Gly	Gly	Ser	Gly	Asn	Cys	
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 Ser Trp Gly Val Arg Leu Arg Thr  
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 <213> Nocardiosis sp. NRRL 18262 ("Protease 10")

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Asp Glu Ala Ala Ala Glu Ala Ala Gly Asp Ala Tyr Gly Gly Ser  
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Val Phe Asp Thr Glu Ser Leu Glu Leu Thr Val Leu Val Thr Asp Ala  
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Ala Asp Ala Val Pro Gly Val Val Gly Trp Tyr Pro Asp Val Ala Gly  
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Asp Thr Val Val Leu Glu Val Leu Glu Gly Ser Gly Ala Asp Val Ser  
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Gly Leu Leu Ala Asp Ala Gly Val Asp Ala Ser Ala Val Glu Val Thr  
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Thr Ser Asp Gln Pro Glu Leu Tyr Ala Asp Ile Ile Gly Gly Leu Ala  
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Tyr Thr Met Gly Gly Arg Cys Ser Val Gly Phe Ala Ala Thr Asn Ala  
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Ala Gly Gln Pro Gly Phe Val Thr Ala Gly His Cys Gly Arg Val Gly  
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Thr Gln Val Thr Ile Gly Asn Gly Arg Gly Val Phe Glu Gln Ser Val  
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Phe Pro Gly Asn Asp Ala Ala Phe Val Arg Gly Thr Ser Asn Phe Thr  
60 65 70

Leu Thr Asn Leu Val Ser Arg Tyr Asn Thr Gly Gly Tyr Ala Thr Val  
75 80 85

Ala Gly His Asn Gln Ala Pro Ile Gly Ser Ser Val Cys Arg Ser Gly  
90 95 100

Ser Thr Thr Gly Trp His Cys Gly Thr Ile Gln Ala Arg Gly Gln Ser  
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Val Ser Tyr Pro Glu Gly Thr Val Thr Asn Met Thr Arg Thr Thr Val  
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Cys Ala Glu Pro Gly Asp Ser Gly Gly Ser Tyr Ile Ser Gly Thr Gln  
140 145 150

Ala Gln Gly Val Thr Ser Gly Gly Ser Gly Asn Cys Arg Thr Gly Gly  
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-120 -115 -110	
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-105 -100 -95	
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-70 -65 -60	
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-40 -35 -30	
gcc gcc ctg ctc gcc gac gcc ggt gtg gac tcc tcc tcg gtc cgg gtg Ala Ala Leu Leu Ala Asp Ala Gly Val Asp Ser Ser Ser Val Arg Val	468
-25 -20 -15	
gag gag gcc gag gag gcc ccg cag gtc tac gcc gac atc atc ggc ggc Glu Glu Ala Glu Glu Ala Pro Gln Val Tyr Ala Asp Ile Ile Gly Gly	516
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aac agc gcc ggt cag ccc ggt ttc gtc acc gcc ggc cac tgc ggc acc Asn Ser Ala Gly Gln Pro Gly Phe Val Thr Ala Gly His Cys Gly Thr	612
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Gln Thr Val Arg Tyr Pro Gln Gly Thr Val Tyr Ser Leu Thr Arg Thr	
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Asn Val Cys Ala Glu Pro Gly Asp Ser Gly Gly Ser Phe Ile Ser Gly	
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tcg cag gcc cag ggc gtc acc tcc ggc ggc tcc ggc aac tgc tcc gtc	996
Ser Gln Ala Gln Gly Val Thr Ser Gly Gly Ser Gly Asn Cys Ser Val	
155 160 165	
ggc ggc acg acc tac tac cag gag gtc acc ccg atg atc aac tcc tgg	1044
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Val Ser His Gly Thr Glu Gly Leu Thr Glu Val Val Glu Asp Leu Asn	
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Ala Ala Leu Leu Ala Asp Ala Gly Val Asp Ser Ser Ser Val Arg Val	
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Glu Glu Ala Glu Glu Ala Pro Gln Val Tyr Ala Asp Ile Ile Gly Gly  
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Leu Ala Tyr Tyr Met Gly Gly Arg Cys Ser Val Gly Phe Ala Ala Thr  
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Asn Ser Ala Gly Gln Pro Gly Phe Val Thr Ala Gly His Cys Gly Thr  
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Val Gly Thr Gly Val Thr Ile Gly Asn Gly Thr Gly Thr Phe Gln Asn  
 40 45 50

Ser Val Phe Pro Gly Asn Asp Ala Ala Phe Val Arg Gly Thr Ser Asn  
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Phe Thr Leu Thr Asn Leu Val Ser Arg Tyr Asn Ser Gly Gly Tyr Gln  
 75 80 85

Ser Val Thr Gly Thr Ser Gln Ala Pro Ala Gly Ser Ala Val Cys Arg  
 90 95 100

Ser Gly Ser Thr Thr Gly Trp His Cys Gly Thr Ile Gln Ala Arg Asn  
 105 110 115

Gln Thr Val Arg Tyr Pro Gln Gly Thr Val Tyr Ser Leu Thr Arg Thr  
 120 125 130

Asn Val Cys Ala Glu Pro Gly Asp Ser Gly Gly Ser Phe Ile Ser Gly  
 135 140 145 150

Ser Gln Ala Gln Gly Val Thr Ser Gly Gly Ser Gly Asn Cys Ser Val  
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Gly Gly Thr Thr Tyr Tyr Gln Glu Val Thr Pro Met Ile Asn Ser Trp  
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Gly Val Arg Ile Arg Thr  
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 <222> (1)..(1059)

<220>  
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[illegible]



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 tcg gtg agc tac ccc gag ggc acc gtc acc aac atg acc cgg acc acc 900  
 Ser Val Ser Tyr Pro Glu Gly Thr Val Thr Asn Met Thr Arg Thr Thr  
 120 125 130 135  
 gtg tgc gcc gag ccc ggc gac tcc ggc ggc tcc tac atc tcc ggc aac 948  
 Val Cys Ala Glu Pro Gly Asp Ser Gly Gly Ser Tyr Ile Ser Gly Asn  
 140 145 150  
 cag gcc cag ggc gtc acc tcc ggc ggc tcc ggc aac tgc cgc acc ggc 996  
 Gln Ala Gln Gly Val Thr Ser Gly Gly Ser Gly Asn Cys Arg Thr Gly  
 155 160 165  
 ggg acc acc ttc tac cag gag gtc acc ccc atg gtg aac tcc tgg ggc 1044  
 Gly Thr Thr Phe Tyr Gln Glu Val Thr Pro Met Val Asn Ser Trp Gly  
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 gtc cgt ctc cgg acc taa 1062  
 Val Arg Leu Arg Thr  
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 Val Asp Glu Ala Ala Ala Ala Ala Ala Gly Asp Ala Tyr Gly Gly  
 -120 -115 -110  
 Ser Val Phe Asp Thr Glu Thr Leu Glu Leu Thr Val Leu Val Thr Asp  
 -105 -100 -95 -90  
 Ala Ala Ser Val Glu Ala Val Glu Ala Thr Gly Ala Gly Thr Glu Leu  
 -85 -80 -75  
 Val Ser Tyr Gly Ile Glu Gly Leu Asp Glu Ile Ile Gln Asp Leu Asn  
 -70 -65 -60  
 Ala Ala Asp Ala Val Pro Gly Val Val Gly Trp Tyr Pro Asp Val Ala  
 -55 -50 -45  
 Gly Asp Thr Val Val Leu Glu Val Leu Glu Gly Ser Gly Ala Asp Val  
 -40 -35 -30

## 10508.204-wo.ST25

Ser Gly Leu Leu Ala Asp Ala Gly Val Asp Ala Ser Ala Val Glu Val  
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Thr Ser Ser Ala Gln Pro Glu Leu Tyr Ala Asp Ile Ile Gly Gly Leu  
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Ala Tyr Thr Met Gly Gly Arg Cys Ser Val Gly Phe Ala Ala Thr Asn  
 10 15 20

Ala Ala Gly Gln Pro Gly Phe Val Thr Ala Gly His Cys Gly Arg Val  
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Gly Thr Gln Val Ser Ile Gly Asn Gly Gln Gly Val Phe Glu Gln Ser  
 40 45 50 55

Ile Phe Pro Gly Asn Asp Ala Ala Phe Val Arg Gly Thr Ser Asn Phe  
 60 65 70

Thr Leu Thr Asn Leu Val Ser Arg Tyr Asn Thr Gly Gly Tyr Ala Thr  
 75 80 85

Val Ala Gly His Asn Gln Ala Pro Ile Gly Ser Ser Val Cys Arg Ser  
 90 95 100

Gly Ser Thr Thr Gly Trp His Cys Gly Thr Ile Gln Ala Arg Gly Gln  
 105 110 115

Ser Val Ser Tyr Pro Glu Gly Thr Val Thr Asn Met Thr Arg Thr Thr  
 120 125 130 135

Val Cys Ala Glu Pro Gly Asp Ser Gly Gly Ser Tyr Ile Ser Gly Asn  
 140 145 150

Gln Ala Gln Gly Val Thr Ser Gly Gly Ser Gly Asn Cys Arg Thr Gly  
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Val Arg Leu Arg Thr  
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&lt;222&gt; (496)..(1059)

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ctt gag gcc gat gaa ctg ctg gcc gcc cag gac acc gcc ttc gag Leu Glu Ala Asp Glu Leu Leu Ala Ala Gln Asp Thr Ala Phe Glu -135 -130 -125	135
gtc gac gag gcc gcg gcc gag gcc gcc ggt gac gcc tac ggc ggc Val Asp Glu Ala Ala Ala Glu Ala Ala Gly Asp Ala Tyr Gly Gly -120 -115 -110	180
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gcc gcc gac gcc gtt ccc ggc gtg gtc ggc tgg tac ccg gac gtc gcg Ala Ala Asp Ala Val Pro Gly Val Val Gly Trp Tyr Pro Asp Val Ala -55 -50 -45	372
ggt gac acc gtc gtg ctg gag gtc ctg gag ggt tcc ggc gcc gac gtg Gly Asp Thr Val Val Leu Glu Val Leu Glu Gly Ser Gly Ala Asp Val -40 -35 -30	420
ggc ggc ctg ctc gcc gac gcc ggc gtg gac gcc tcg gcg gtc gag gtg Gly Gly Leu Leu Ala Asp Ala Gly Val Asp Ala Ser Ala Val Glu Val -25 -20 -15 -10	468
acc acc acc gag cag ccc gag ctg tac gcc gac atc atc ggc ggt ctg Thr Thr Thr Glu Gln Pro Glu Leu Tyr Tyr Ala Asp Ile Ile Gly Gly Leu -5 -1 -1 5	516
gcc tac acc atg ggc ggc cgc tgt tgc gtc ggc ttc gcg gcc acc aac Ala Tyr Thr Met Gly Gly Arg Cys Ser Val Gly Phe Ala Ala Thr Asn 10 15 20	564
gcc gcc ggt cag ccc ggc ttc gtc acc gcc ggt cac tgt ggc cgc gtg Ala Ala Gly Gln Pro Gly Phe Val Thr Ala Gly His Cys Gly Arg Val 25 30 35	612
ggc acc cag gtg acc atc ggc aac ggc cgg ggc gtc ttc gag cag tcc Gly Thr Gln Val Thr Ile Gly Asn Gly Arg Gly Val Phe Glu Gln Ser 40 45 50 55	660
atc ttc ccg ggc aac gac gcc gcc ttc gtc cgc gga acg tcc aac ttc Ile Phe Pro Gly Asn Asp Ala Ala Phe Val Arg Gly Thr Ser Asn Phe 60 65 70	708
acg ctg acc aac ctg gtc agc cgc tac aac acc ggc ggc tac gcc acc Thr Leu Thr Asn Leu Val Ser Arg Tyr Asn Thr Gly Gly Tyr Ala Thr 75 80 85	756

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gtc gcc ggt cac aac cag gcg ccc atc ggc tcc tcc gtc tgc cgc tcc	804
Val Ala Gly His Asn Gln Ala Pro Ile Gly Ser Ser Val Cys Arg Ser	
90 95 100	
ggc tcc acc acc ggt tgg cac tgc ggc acc atc cag gcc cgc ggc cag	852
Gly Ser Thr Thr Gly Trp His Cys Gly Thr Ile Gln Ala Arg Gly Gln	
105 110 115	
tgc gtg agc tac ccc gag ggc acc gtc acc aac atg acg cgg acc acc	900
Ser Val Ser Tyr Pro Glu Gly Thr Val Thr Asn Met Thr Arg Thr Thr	
120 125 130 135	
gtg tgc gcc gag ccc ggc gac tcc ggc ggc tcc tac atc tcc ggc aac	948
Val Cys Ala Glu Pro Gly Asp Ser Gly Gly Ser Tyr Ile Ser Gly Asn	
140 145 150	
cag gcc cag ggc gtc acc tcc ggc ggc tcc ggc aac tgc cgc acc ggc	996
Gln Ala Gln Gly Val Thr Ser Gly Gly Ser Gly Asn Cys Arg Thr Gly	
155 160 165	
ggg acc acc ttc tac cag gag gtc acc ccc atg gtg aac tcc tgg ggc	1044
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 -135 -130 -125

Val Asp Glu Ala Ala Ala Glu Ala Ala Gly Asp Ala Tyr Gly Gly  
 -120 -115 -110

Ser Val Phe Asp Thr Glu Thr Leu Glu Leu Thr Val Leu Val Thr Asp  
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Ser Ala Ala Val Glu Ala Val Glu Ala Thr Gly Ala Gly Thr Glu Leu  
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Val Ser Tyr Gly Ile Thr Gly Leu Asp Glu Ile Val Glu Glu Leu Asn  
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Ala Ala Asp Ala Val Pro Gly Val Val Gly Trp Tyr Pro Asp Val Ala  
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Gly Asp Thr Val Val Leu Glu Val Leu Glu Gly Ser Gly Ala Asp Val  
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Gly Gly Leu Leu Ala Asp Ala Gly Val Asp Ala Ser Ala Val Glu Val  
 -25 -20 -15 -10

Thr Thr Thr Glu Gln Pro Glu Leu Tyr Ala Asp Ile Ile Gly Gly Leu  
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Ala Ala Gly Gln Pro Gly Phe Val Thr Ala Gly His Cys Gly Arg Val  
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Gly Thr Gln Val Thr Ile Gly Asn Gly Arg Gly Val Phe Glu Gln Ser  
 40 45 50 55

Ile Phe Pro Gly Asn Asp Ala Ala Phe Val Arg Gly Thr Ser Asn Phe  
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Thr Leu Thr Asn Leu Val Ser Arg Tyr Asn Thr Gly Gly Tyr Ala Thr  
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Val Ala Gly His Asn Gln Ala Pro Ile Gly Ser Ser Val Cys Arg Ser  
 90 95 100

Gly Ser Thr Thr Gly Trp His Cys Gly Thr Ile Gln Ala Arg Gly Gln  
 105 110 115

Ser Val Ser Tyr Pro Glu Gly Thr Val Thr Asn Met Thr Arg Thr Thr  
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Val Cys Ala Glu Pro Gly Asp Ser Gly Gly Ser Tyr Ile Ser Gly Asn  
 140 145 150

Gln Ala Gln Gly Val Thr Ser Gly Gly Ser Gly Asn Cys Arg Thr Gly  
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Val Arg Leu Arg Thr  
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-150 -145 -140	
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-135 -130 -125	
gag atc gac gag gcc gcc acc gcg gcc gca gcc gac tcc tac ggc Glu Ile Asp Glu Ala Ala Thr Ala Ala Ala Asp Ser Tyr Gly	180
-120 -115 -110	
ggc tcc atc ttc gac acc gac agc ctc acc ctg acc gtc ctg gtc acc Gly Ser Ile Phe Asp Thr Asp Ser Leu Thr Leu Thr Val Leu Val Thr	228
-105 -100 -95	
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-90 -85 -80	
gtg gtc tcg cac ggc atg gag ggc ctg gag gag atc gtc gcc gac ctg Val Val Ser His Gly Met Glu Gly Leu Glu Glu Ile Val Ala Asp Leu	324
-75 -70 -65 -60	
aac gcg gcc gac gct cag ccc ggc gtc gtg ggc tgg tac ccc gac atc Asn Ala Ala Asp Ala Gln Pro Gly Val Val Gly Trp Tyr Pro Asp Ile	372
-55 -50 -45	
cac tcc gac acg gtc gtc ctc gag gtc ctc gag ggc tcc ggt gcc gac His Ser Asp Thr Val Val Leu Glu Val Leu Glu Gly Ser Gly Ala Asp	420
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Asn 70	Phe	Thr	Leu	Thr	Asn 75	Leu	Val	Ser	Arg	Tyr 80	Asn	Thr	Gly	Gly	Tyr 85	
gcg	acc	gtc	tcc	ggc	tcc	tcg	cag	gcg	gcg	atc	ggc	tcg	cag	atc	tgc	804
Ala	Thr	Val	Ser	Gly 90	Ser	Ser	Gln	Ala	Ala 95	Ile	Gly	Ser	Gln	Ile 100	Cys	
cgt	tcc	ggc	tcc	acc	acc	ggc	tgg	cac	tgc	ggc	acc	gtc	cag	gcc	cgc	852
Arg	Ser	Gly	Ser 105	Thr	Thr	Gly	Trp	His 110	Cys	Gly	Thr	Val	Gln 115	Ala	Arg	
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acc	aac	gtc	tgc	gcc	gag	ccc	ggt	gac	tcc	ggc	ggc	tcc	ttc	atc	tcc	948
Thr	Asn 135	Val	Cys	Ala	Glu	Pro 140	Gly	Asp	Ser	Gly	Gly 145	Ser	Phe	Ile	Ser	
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Gly 150	Ser	Gln	Ala	Gln 155	Gly	Val	Thr	Ser	Gly	Gly 160	Ser	Gly	Asn	Cys	Ser 165	
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Phe	Gly	Gly	Thr 170	Thr	Tyr	Tyr	Gln	Glu	Val 175	Asn	Pro	Met	Leu	Ser 180	Ser	
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Trp	Gly	Leu	Thr 185	Leu	Arg	Thr										

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&lt;211&gt; 355

&lt;212&gt; PRT

&lt;213&gt; Nocardiosis alba DSM 15647 ("Protease 08")

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		-150					-145					-140			
Pro	Ser	Gln	Ala	Asp	Glu	Leu	Leu	Glu	Ala	Gln	Ala	Glu	Ser	Phe	
		-135					-130					-125			
Glu	Ile	Asp	Glu	Ala	Ala	Thr	Ala	Ala	Ala	Ala	Asp	Ser	Tyr	Gly	
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Gly	Ser	Ile	Phe	Asp	Thr	Asp	Ser	Leu	Thr	Leu	Thr	Val	Leu	Val	Thr
		-105					-100					-95			
Asp	Ala	Ser	Ala	Val	Glu	Ala	Val	Glu	Ala	Ala	Gly	Ala	Glu	Ala	Lys
		-90				-85					-80				
Val	Val	Ser	His	Gly	Met	Glu	Gly	Leu	Glu	Glu	Ile	Val	Ala	Asp	Leu
		-75			-70					-65					-60

Asn Ala Ala Asp Ala Gln Pro Gly Val Val Gly Trp Tyr Pro Asp Ile

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-55 -50 -45

His Ser Asp Thr Val Val Leu Glu Val Leu Glu Gly Ser Gly Ala Asp  
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Val Asp Ser Leu Leu Ala Asp Ala Gly Val Asp Thr Ala Asp Val Lys  
-25 -20 -15

Val Glu Ser Thr Thr Glu Gln Pro Glu Leu Tyr Ala Asp Ile Ile Gly  
-10 -5 -1 1 5

Gly Leu Ala Tyr Thr Met Gly Gly Arg Cys Ser Val Gly Phe Ala Ala  
10 15 20

Thr Asn Ala Ser Gly Gln Pro Gly Phe Val Thr Ala Gly His Cys Gly  
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40 45 50

Arg Ser Val Phe Pro Gly Asn Asp Ser Ala Phe Val Arg Gly Thr Ser  
55 60 65

Asn Phe Thr Leu Thr Asn Leu Val Ser Arg Tyr Asn Thr Gly Gly Tyr  
70 75 80 85

Ala Thr Val Ser Gly Ser Ser Gln Ala Ala Ile Gly Ser Gln Ile Cys  
90 95 100

Arg Ser Gly Ser Thr Thr Gly Trp His Cys Gly Thr Val Gln Ala Arg  
105 110 115

Gly Gln Thr Val Ser Tyr Pro Gln Gly Thr Val Gln Asn Leu Thr Arg  
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Thr Asn Val Cys Ala Glu Pro Gly Asp Ser Gly Gly Ser Phe Ile Ser  
135 140 145

Gly Ser Gln Ala Gln Gly Val Thr Ser Gly Gly Ser Gly Asn Cys Ser  
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 yfmH-yfmD-yfmC-yfmB-yfmA genes  
  
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 <223> Cat gene providing chloramphenicol resistance  
  
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 <222> (6839)..(7540)  
 <223> Part of Bacillus subtilis pectate lyase gene  
  
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 <222> (7541)..(10172)  
 <223> Bacillus subtilis genome DNA including yf1S-citM genes  
  
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gcaccgaaca gtgccgaaaa cggaagcacg tattgataat gttctccgat cagcttgccg	240
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Ala Ala Thr Gly Ala Leu Val Gln Ser Pro Thr Glu Ala Asp	
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Ala Val Ser Met Gln Glu Ala Leu Gln Arg Asp Asp Leu Thr	
-150 -145 -140	

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gag Glu	gtc Val -120	gac Asp	gag Glu	gcc Ala	gcg Ala	gcc Ala -115	gag Glu	gcc Ala	gcc Ala	ggg Gly	gac Asp -110	gcc Ala	tac Tyr	ggc Gly	5915	
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gtg Val -10	acc Thr	acg Thr	agc Ser	gac Asp	cag Gln -5	ccc Pro	gag Glu	ctc Leu	tac Tyr -1	gcc Ala 1	gac Asp	atc Ile	atc Ile	ggt Gly 5	ggt Gly	6251
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cag Gln	tgc Ser 120	gtg Val	agc Ser	tac Tyr	ccc Pro	gag Glu 125	ggc Gly	acc Thr	gtc Val	acc Thr	aac Asn 130	atg Met	acc Thr	cgg Arg	acc Thr	6635

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Thr Val Cys Ala Glu Pro Gly Asp Ser Gly Gly Ser Tyr Ile Ser Gly	
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acc cag gcc cag ggc gtg acc tcc ggc ggc tcc ggc aac tgc cgc acc	6731
Thr Gln Ala Gln Gly Val Thr Ser Gly Gly Ser Gly Asn Cys Arg Thr	
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Gly Gly Thr Thr Phe Tyr Gln Glu Val Thr Pro Met Val Asn Ser Trp	
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ggc gtc cgt ctc cgg acc taatcgcatg ttcaatccgc tccataatcg	6827
Gly Val Arg Leu Arg Thr	
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tgaagaagct	gatcgacaca	ttgacagagg	ttcgcaata	ttcagaggat	ctcagggcgc	10127
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&lt;400&gt; 14

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Ile Ser Val Ala Phe Ser Ser Ser Ile Ala Ser Ala Ala Thr Gly  
 -175 -170 -165

Ala Leu Pro Gln Ser Pro Thr Pro Glu Ala Asp Ala Val Ser Met  
 -160 -155 -150

Gln Glu Ala Leu Gln Arg Asp Leu Asp Leu Thr Ser Ala Glu Ala  
 -145 -140 -135

Glu Glu Leu Leu Ala Ala Gln Asp Thr Ala Phe Glu Val Asp Glu  
 -130 -125 -120

Ala Ala Ala Glu Ala Ala Gly Asp Ala Tyr Gly Gly Ser Val Phe  
 -115 -110 -105

Asp Thr Glu Ser Leu Glu Leu Thr Val Leu Val Thr Asp Ala Ala Ala  
 -100 -95 -90

Val Glu Ala Val Glu Ala Thr Gly Ala Gly Thr Glu Leu Val Ser Tyr  
 -85 -80 -75

Gly Ile Asp Gly Leu Asp Glu Ile Val Gln Glu Leu Asn Ala Ala Asp  
 -70 -65 -60 -55

Ala Val Pro Gly Val Val Gly Trp Tyr Pro Asp Val Ala Gly Asp Thr  
 -50 -45 -40

Val Val Leu Glu Val Leu Glu Gly Ser Gly Ala Asp Val Ser Gly Leu  
 -35 -30 -25

Leu Ala Asp Ala Gly Val Asp Ala Ser Ala Val Glu Val Thr Thr Ser  
 -20 -15 -10

Asp Gln Pro Glu Leu Tyr Ala Asp Ile Ile Gly Gly Leu Ala Tyr Thr  
 -5 -1 1 5 10

Met Gly Gly Arg Cys Ser Val Gly Phe Ala Ala Thr Asn Ala Ala Gly  
 15 20 25

Gln Pro Gly Phe Val Thr Ala Gly His Cys Gly Arg Val Gly Thr Gln  
 30 35 40

Val Thr Ile Gly Asn Gly Arg Gly Val Phe Glu Gln Ser Val Phe Pro  
 45 50 55

Gly Asn Asp Ala Ala Phe Val Arg Gly Thr Ser Asn Phe Thr Leu Thr  
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70

60

65

Asn Leu Val Ser Arg Tyr Asn Thr Gly Gly Tyr Ala Thr Val Ala Gly  
75 80 85 90

His Asn Gln Ala Pro Ile Gly Ser Ser Val Cys Arg Ser Gly Ser Thr  
95 100 105

Thr Gly Trp His Cys Gly Thr Ile Gln Ala Arg Gly Gln Ser Val Ser  
110 115 120

Tyr Pro Glu Gly Thr Val Thr Asn Met Thr Arg Thr Thr Val Cys Ala  
125 130 135

Glu Pro Gly Asp Ser Gly Gly Ser Tyr Ile Ser Gly Thr Gln Ala Gln  
140 145 150

Gly Val Thr Ser Gly Gly Ser Gly Asn Cys Arg Thr Gly Gly Thr Thr  
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Phe Tyr Gln Glu Val Thr Pro Met Val Asn Ser Trp Gly Val Arg Leu  
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Arg Thr

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att tca gtg gca ttt agc tca tct att gca tca gca gct aca gga 90  
 Ile Ser Val Ala Phe Ser Ser Ile Ala Ser Ala Ala Thr Gly  
 -175 -170 -165

gca tta ccg cag tct ccg aca ccg gaa gca gat gca gtc tca atg 135  
 Ala Leu Pro Gln Ser Pro Thr Pro Glu Ala Asp Ala Val Ser Met  
 -160 -155 -150

caa gaa gca ctg caa aga gat ctt gat ctt aca tca gca gaa gca 180  
 Gln Glu Ala Leu Gln Arg Asp Leu Asp Leu Thr Ser Ala Glu Ala  
 -145 -140 -135

gaa gaa ctt ctt gct gca caa gat aca gca ttt gaa gtg gat gaa 225  
 Glu Glu Leu Leu Ala Ala Gln Asp Thr Ala Phe Glu Val Asp Glu  
 -130 -125 -120

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gca gcg gca gaa gca gca gga gat gca tat ggc ggc tca gtt ttt Ala Ala Ala Glu Ala Ala Gly Asp Ala Tyr Gly Gly Ser Val Phe -115 -110 -105	270
gat aca gaa tca ctt gaa ctt aca gtt ctt gtt aca gat gca gca gca Asp Thr Glu Ser Leu Glu Leu Thr Val Leu Val Thr Asp Ala Ala Ala -100 -95 -90	318
gtt gaa gca gtt gaa gca aca gga gca gga aca gta ctt gtt tca tat Val Glu Ala Val Glu Ala Thr Gly Ala Gly Thr Val Leu Val Ser Tyr -85 -80 -75	366
gga att gat ggc ctt gat gaa att gtt caa gaa ctg aat gca gct gat Gly Ile Asp Gly Leu Asp Glu Ile Val Gln Glu Leu Asn Ala Ala Asp -70 -65 -60 -55	414
gct gtt ccg ggc gtt gtt ggc tgg tat ccg gat gtt gct gga gat aca Ala Val Pro Gly Val Val Gly Trp Tyr Pro Asp Val Ala Gly Asp Thr -50 -45 -40	462
gtt gtc ctt gaa gtt ctt gaa gga tca ggc gca gat gtt tca ggc ctg Val Val Leu Glu Val Leu Glu Gly Ser Gly Ala Asp Val Ser Gly Leu -35 -30 -25	510
ctg gca gac gca gga gtc gat gca tca gca gtt gaa gtt aca aca tca Leu Ala Asp Ala Gly Val Asp Ala Ser Ala Val Glu Val Thr Thr Ser -20 -15 -10	558
gat caa ccg gaa ctt tat gca gat att att ggc ggc ctg gca tat tat Asp Gln Pro Glu Leu Tyr Ala Asp Ile Ile Gly Gly Leu Ala Tyr Tyr -5 -1 1 5 10	606
atg ggc ggc aga tgc agc gtt ggc ttt gca gca aca aat gca tca ggc Met Gly Gly Arg Cys Ser Val Gly Phe Ala Ala Thr Asn Ala Ser Gly 15 20 25	654
caa ccg ggc ttt gtt aca gca ggc cat tgc ggc aca gtt ggc aca cca Gln Pro Gly Phe Val Thr Ala Gly His Cys Gly Thr Val Gly Thr Pro 30 35 40	702
gtt tca att ggc aat ggc aaa ggc gtt ttt gaa cga agc att ttt ccg Val Ser Ile Gly Asn Gly Lys Gly Val Phe Glu Arg Ser Ile Phe Pro 45 50 55	750
ggc aat gat tca gca ttt gtt aga ggc aca tca aat ttt aca ctt aca Gly Asn Asp Ser Ala Phe Val Arg Gly Thr Ser Asn Phe Thr Leu Thr 60 65 70	798
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Gly Val Thr Ser Gly Gly Ser Gly Asn Cys Ser Ala Gly Gly Thr Thr	
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tat tac caa gaa gtt aat ccg atg ctt agt tca tgg ggc ctt aca ctt	1134
Tyr Tyr Gln Glu Val Asn Pro Met Leu Ser Ser Trp Gly Leu Thr Leu	
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aga aca caa tcg cat gtt caa tcc gct cca	1164
Arg Thr Gln Ser His Val Gln Ser Ala Pro	
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-175 -170 -165	
Ala Leu Pro Gln Ser Pro Thr Pro Glu Ala Asp Ala Val Ser Met	
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Gln Glu Ala Leu Gln Arg Asp Leu Asp Leu Thr Ser Ala Glu Ala	
-145 -140 -135	
Glu Glu Leu Leu Ala Ala Gln Asp Thr Ala Phe Glu Val Asp Glu	
-130 -125 -120	
Ala Ala Ala Glu Ala Ala Gly Asp Ala Tyr Gly Gly Ser Val Phe	
-115 -110 -105	
Asp Thr Glu Ser Leu Glu Leu Thr Val Leu Val Thr Asp Ala Ala Ala	
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Val Glu Ala Val Glu Ala Thr Gly Ala Gly Thr Val Leu Val Ser Tyr	
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Gly Ile Asp Gly Leu Asp Glu Ile Val Gln Glu Leu Asn Ala Ala Asp	
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Ala Val Pro Gly Val Val Gly Trp Tyr Pro Asp Val Ala Gly Asp Thr	
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Val Val Leu Glu Val Leu Glu Gly Ser Gly Ala Asp Val Ser Gly Leu	
-35 -30 -25	

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Leu Ala Asp Ala Gly Val Asp Ala Ser Ala Val Glu Val Thr Thr Ser  
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Asp Gln Pro Glu Leu Tyr Ala Asp Ile Ile Gly Gly Leu Ala Tyr Tyr  
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Met Gly Gly Arg Cys Ser Val Gly Phe Ala Ala Thr Asn Ala Ser Gly  
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Gln Pro Gly Phe Val Thr Ala Gly His Cys Gly Thr Val Gly Thr Pro  
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Val Ser Ile Gly Asn Gly Lys Gly Val Phe Glu Arg Ser Ile Phe Pro  
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Asn Leu Val Ser Arg Tyr Asn Ser Gly Gly Tyr Ala Thr Val Ala Gly  
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His Asn Gln Ala Pro Ile Gly Ser Ala Val Cys Arg Ser Gly Ser Thr  
                   95                  100                  105

Thr Gly Trp His Cys Gly Thr Ile Gln Ala Arg Asn Gln Thr Val Arg  
           110                  115                  120

Tyr Pro Gln Gly Thr Val Tyr Ser Leu Thr Arg Thr Thr Val Cys Ala  
          125                  130                  135

Glu Pro Gly Asp Ser Gly Gly Ser Tyr Ile Ser Gly Thr Gln Ala Gln  
      140                  145                  150

Gly Val Thr Ser Gly Gly Ser Gly Asn Cys Ser Ala Gly Gly Thr Thr  
      155                  160                  165                  170

Tyr Tyr Gln Glu Val Asn Pro Met Leu Ser Ser Trp Gly Leu Thr Leu  
          175                  180                  185

Arg Thr Gln Ser His Val Gln Ser Ala Pro  
          190                  195